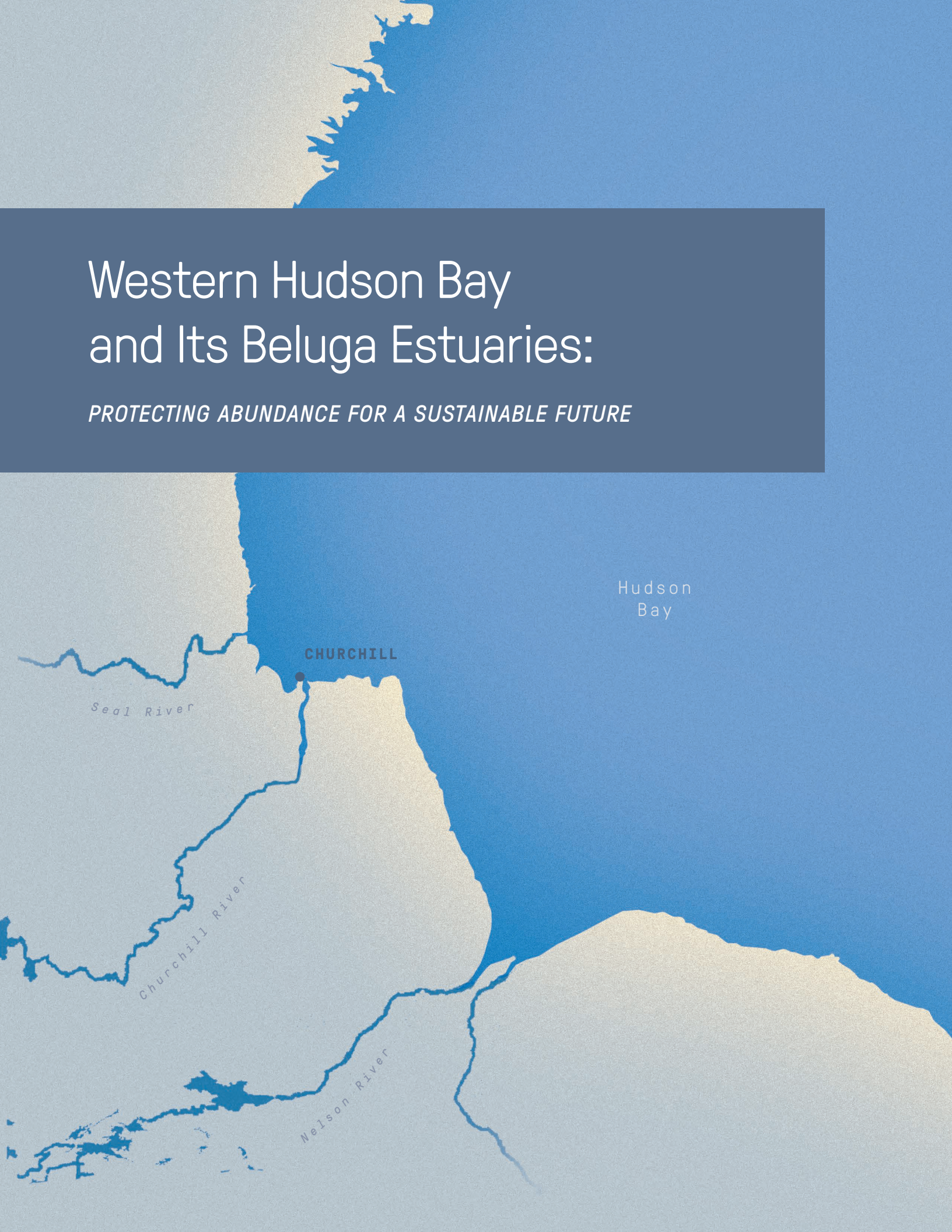
Western Hudson Bay and Its Beluga Estuaries:

PROTECTING ABUNDANCE FOR A SUSTAINABLE FUTURE



Description of the Area

Ecological Features

Western Hudson Bay is a conduit for fresh water flowing from its estuaries into the Arctic Ocean. The estuaries act as arteries connecting much of Canada's southern landmass to its northern seas. The Seal, Churchill and Nelson rivers are key freshwater inputs into Hudson Bay, which receives 30 per cent of Canada's freshwater flow. Hudson Bay in turn contributes 20 per cent of the Arctic Ocean's freshwater.[19] Large estuaries feature extensive low-lying marshes and coastal plains with wide tidal mudflats that provide a seasonal home for an incredible range of both Arctic and sub-Arctic species. The Nelson, Churchill and Seal rivers significantly shape this coastal landscape and provide an ideal habitat for the world's largest congregation of beluga whales and polar bears. The region constitutes the extreme southern range of iconic Arctic marine mammals.[20]

Over 170 species of migratory birds arrive every year to nest and feed in its vast salt marshes and eelgrass meadows, which provide some protection from the ravens, Arctic foxes, gulls and jaegers that depend on them for food. These birds raise their young amongst waters that host approximately 60 species of fish, including Arctic cod, Arctic char and whitefish, which all play important roles in the food chain. No commercial fishing occurs in this region.

It is no surprise that the area has been identified by the Department of Fisheries and Oceans Canada as an ecologically or biologically significant area (EBSA), a designation that underlines the need for appropriate management. The chart on the opposite page identifies key aspects used to determine the significance of the area.

BELUGA WHALE (*DELPHINAPTERUS LEUCAS*)
***QILALUGAQ* IN INUKTUT**

- Up to 5 m in length and weigh up to 1,500 kg
- Lifespan of 60–70 years
- Females give birth to a single calf every two to three years
- Born pink or brown, turn dark grey and gradually white as they reach maturity
- Varied diet of small fish and crustaceans such as Arctic Cod, capelin, and shrimp
- Use sound and echolocation to communicate, navigate, and search for food
- Migration occurs seasonally with animals generally moving toward estuaries and open water in summer, foraging grounds in fall, and mobile pack ice for the winter
- Considered to be highly sensitive to climatic changes and changing ice conditions due to their preference for dense pack ice in winter
- Most recent global population estimate is near 200,000
- Western Hudson Bay is home to the largest summer population of belugas in the world, estimated at 55,000

Beluga Illustration: Ann Sanderson

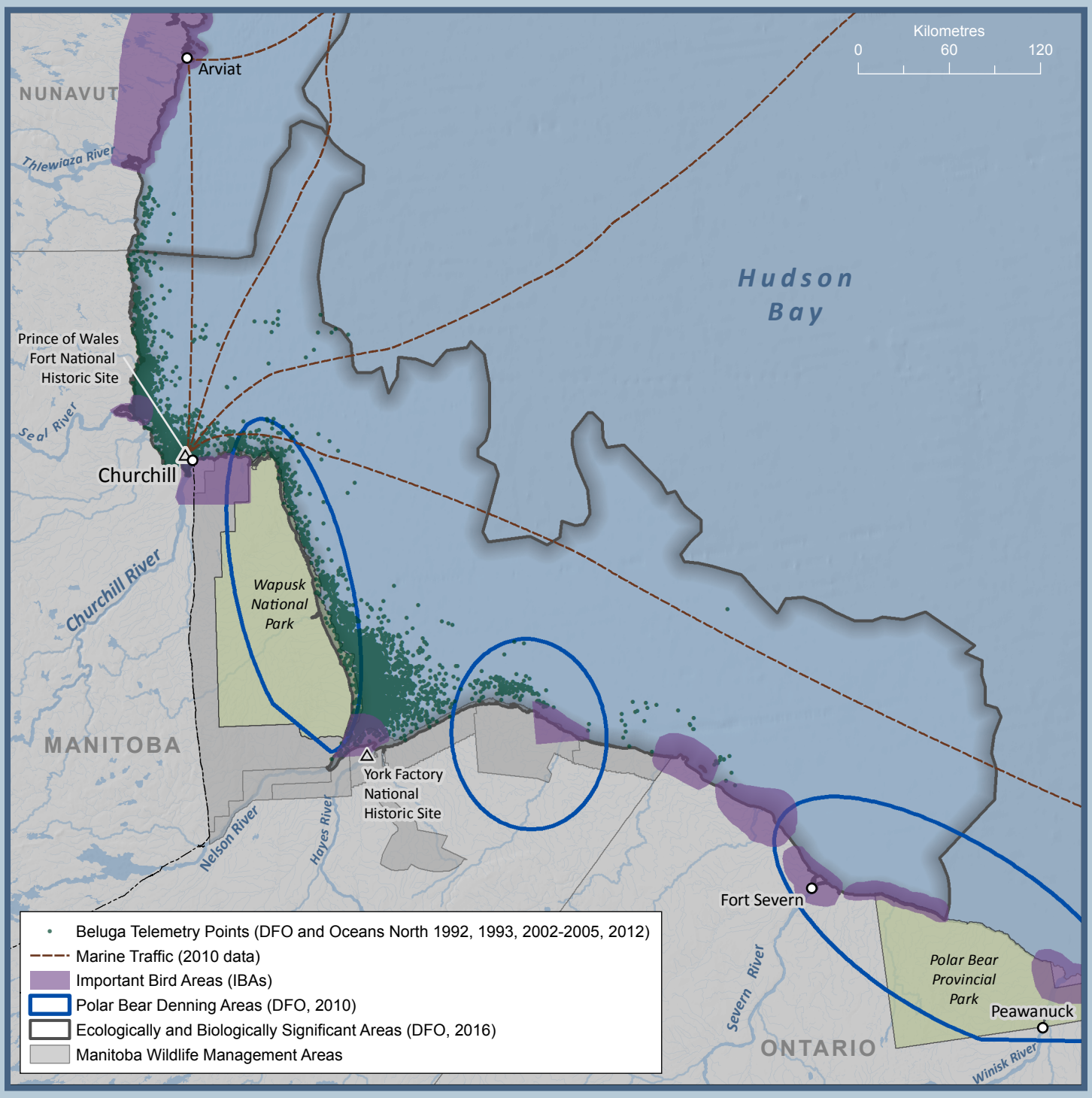


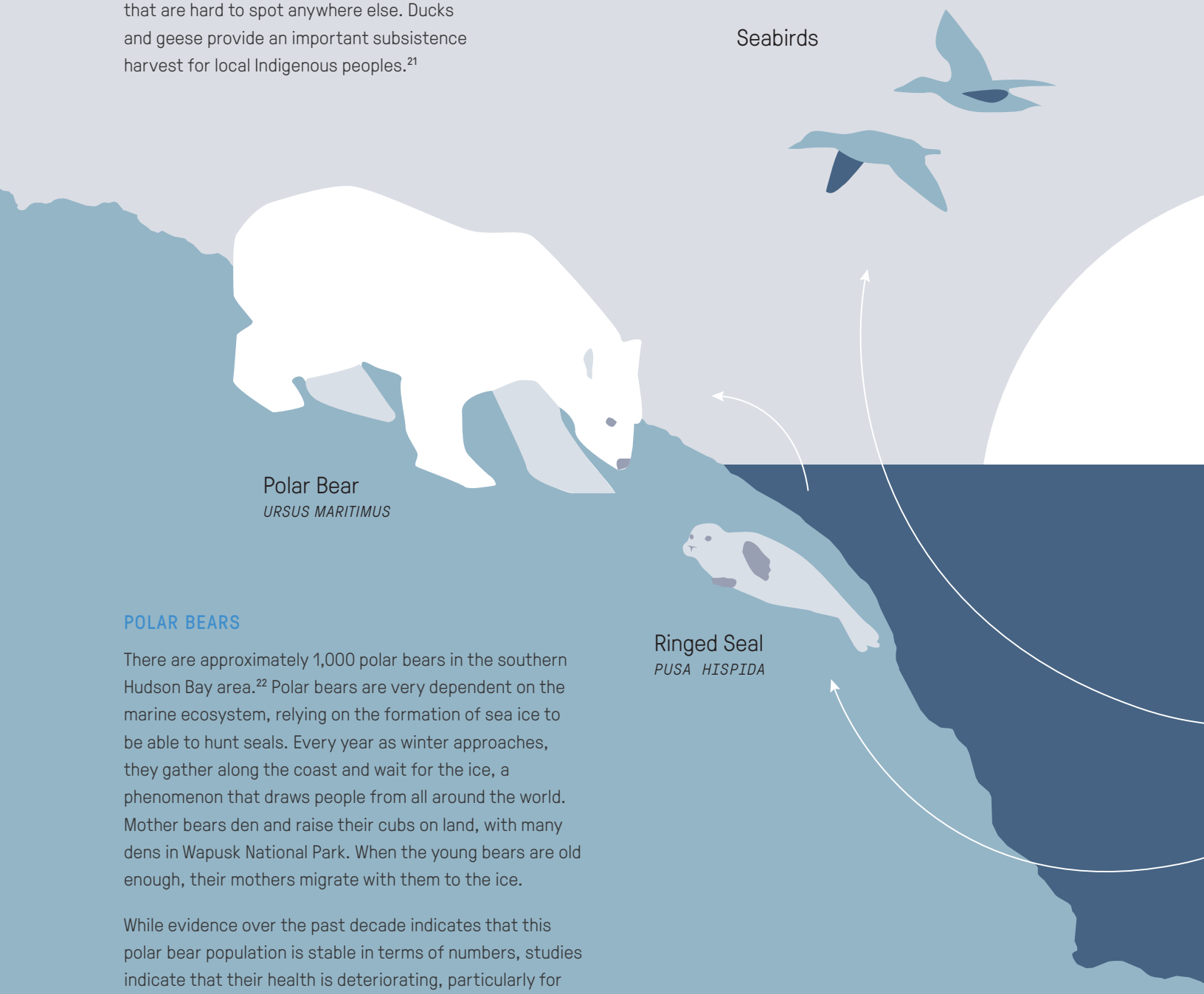
Figure 3. Western Hudson Bay

EBSA	Physical Features	Uniqueness	Aggregation	Fitness Consequences	Rare or Endangered Species	Level of Confidence	Heterogeneity of the EBSA
1.7 Southwestern Hudson Bay Estuaries	Three estuaries (Churchill, Nelson and Seal rivers)	World's largest summering Beluga aggregation Harbour Seals	Beluga aggregation Polar Bear denning, feeding and rearing High benthic diversity and production	Polar Bear denning and feeding Beluga aggregation High food supply for benthos	Western Hudson Bay Beluga Ross's Gull Western Hudson Bay Polar Bear (Threatened under Province of Manoitoba)	High	No distinct areas

Figure 3a. Ecologically and Biologically Significant Areas 1.7

BIRDS

Seasoned bird researchers and enthusiasts know that Churchill is the place to visit to see millions of migratory geese and shorebirds that feed and breed in the nutrient-rich coastal salt marshes and productive eel grass in the summer. One hundred and seventy species of birds can be found in the region, including birds that are hard to spot anywhere else. Ducks and geese provide an important subsistence harvest for local Indigenous peoples.[21]



POLAR BEARS

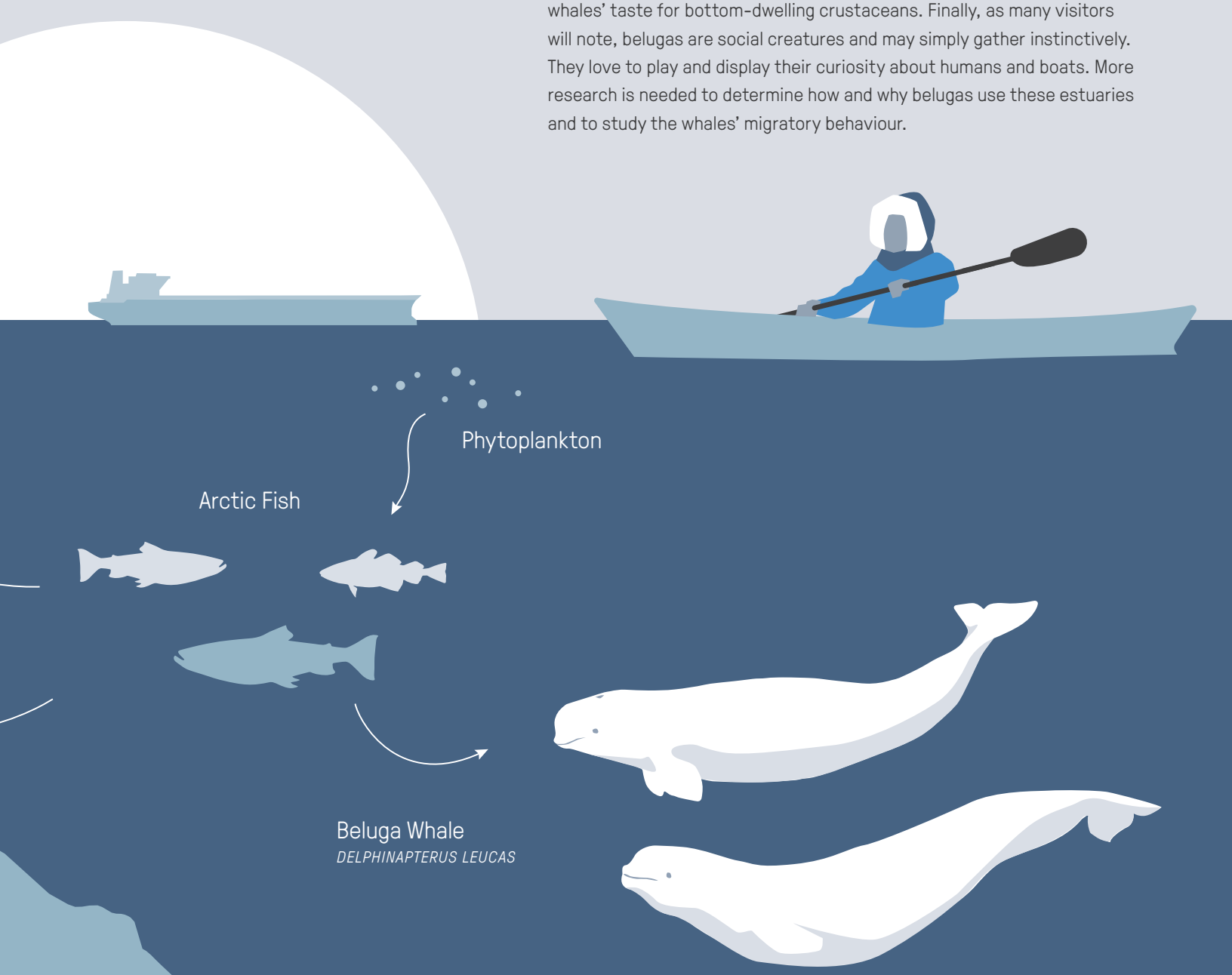
There are approximately 1,000 polar bears in the southern Hudson Bay area.[22] Polar bears are very dependent on the marine ecosystem, relying on the formation of sea ice to be able to hunt seals. Every year as winter approaches, they gather along the coast and wait for the ice, a phenomenon that draws people from all around the world. Mother bears den and raise their cubs on land, with many dens in Wapusk National Park. When the young bears are old enough, their mothers migrate with them to the ice.

While evidence over the past decade indicates that this polar bear population is stable in terms of numbers, studies indicate that their health is deteriorating, particularly for females.[23] Longer waits for the sea ice to form, and earlier melting, mean less time for the bears to hunt fatty seals and gain the weight that is critical for them to reproduce, raise healthy young and survive the lean summer months on land. The average life expectancy of a polar bear is 15 to 18 years, with few bears living longer than 25 years.

BELUGA WHALES

As summer approaches and sea ice melts, an estimated 55,000 beluga whales migrate from their winter home south of Baffin Island into the Churchill, Seal, and Nelson river estuaries.[24] One of eight distinct beluga populations in Canada, this group makes up 28 per cent of the world's beluga population, the largest concentration of these whales in the world.[25]

There are a few theories as to why these curious ocean creatures make their way into the estuaries every year. The waters here are warm and of low salinity, making them ideal for not only skin moulting, but also calving and nursing. Despite their proximity to humans, the estuaries provide protection for young belugas and their mothers from predators, such as killer whales, that frequent deeper ocean waters. Western Hudson Bay and its estuaries are home to a number of Arctic fish that belugas eat, and also cater to the whales' taste for bottom-dwelling crustaceans. Finally, as many visitors will note, belugas are social creatures and may simply gather instinctively. They love to play and display their curiosity about humans and boats. More research is needed to determine how and why belugas use these estuaries and to study the whales' migratory behaviour.



Climate Change and Other Threats

The coastline of Hudson Bay provides habitat for a range of globally significant species, including very high concentrations of beluga whales and polar bears. Climate change and the resulting reduction of sea ice in the region will impact this habitat and the species that rely on it for survival. Over the past few decades, there has been a substantial decrease in spring sea ice concentration in the region. The results of one study show a loss of spring sea concentration of between 15.1 per cent and 20.4 per cent in each decade.[26] Less sea ice will impact polar bears who use the ice as a platform for hunting seals. Less sea ice could also mean a longer and busier shipping season, particularly in and around the Port of Churchill. This could, in turn, impact beluga whale habitat such as river estuaries and migration corridors and intensify threats such as ship traffic, noise and pollutants.[27]

The effect of climate change in Hudson Bay on belugas is not yet fully understood. However, predicted changes to Arctic sea ice may mean that they become more vulnerable to new threats such as increased predation from orca whales. Orcas have not been known to appear regularly in this region until recent decades, coinciding with an increase in the length of open-water periods.[28] Other potential threats to Hudson Bay belugas, including hydroelectric development and increased ship traffic, have led to this population being identified as a population of "special concern" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and it is also being considered for listing under the federal Species at Risk Act (SARA). It is recognized that upstream hydroelectric development has changed the water flow to some of the river estuaries that belugas rely upon. While study of these water flows is ongoing, the exact impacts of hydroelectric development on the belugas have been difficult to assess and measure conclusively due to the absence of baseline studies before the development took place.[29]

The establishment of an NMCA in this region will provide for more detailed studies of habitat use, as well as ongoing monitoring programs to detect changes and impacts. The NMCA would establish a management plan designed to mitigate threats with adaptive mechanisms to respond to changes, while working with the Port of Churchill and shipping industry to design preferred minimal-impact shipping routes and prohibit ocean dumping of hazardous pollutants. Furthermore, an NMCA could ensure that future actions by Manitoba Hydro are coordinated and consistent with the NMCA management plan and that Manitoba Hydro is directly engaged as a partner in the conservation and management of beluga habitat in the area.

Credit: Travel Manitoba

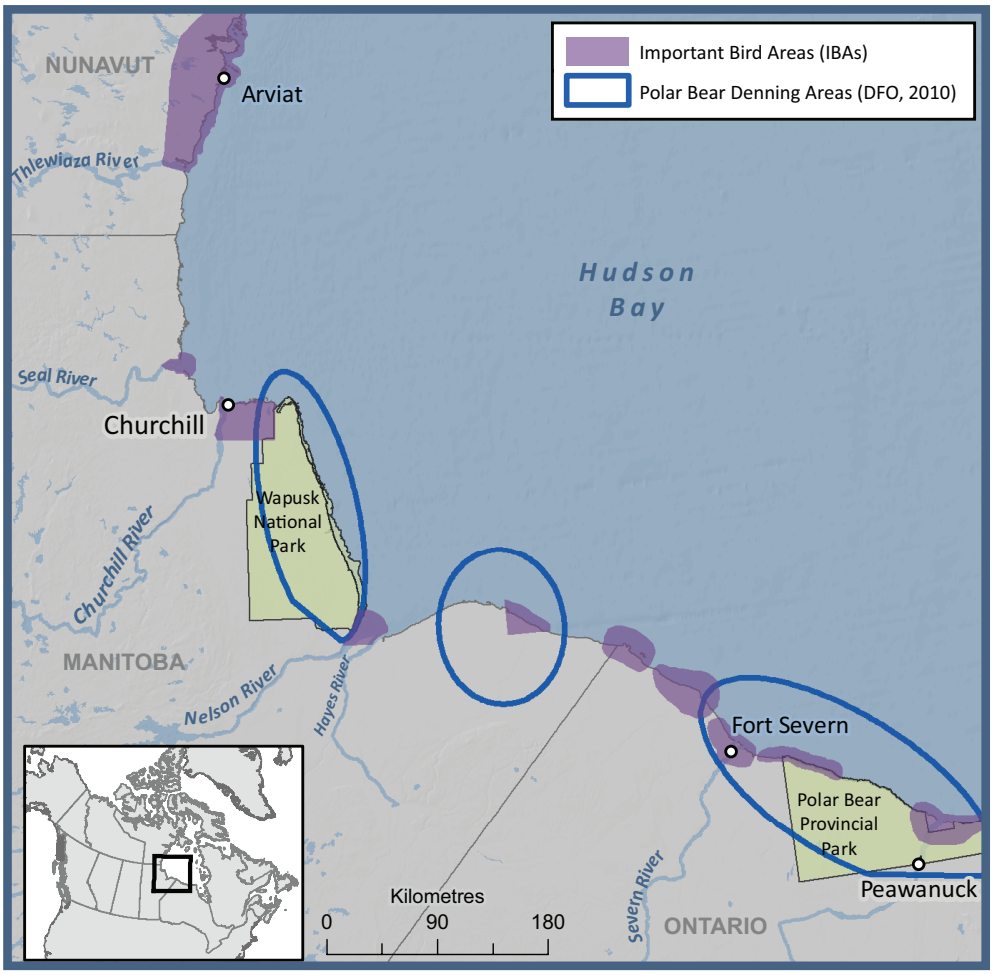


Figure 4. Important Bird Areas and Polar Bear Denning Sites

Credit: Renato Granieri